Proposal

of

SEATTLE CITY LIGHT

for

INCINERATION OF LAKE UNION

FUEL OIL INVENTORY

February 8, 1985

NORTHWEST TANK SERVICES

Seattle, Washington

Contents

Attachments

A. Proposed Method for Meeting the Project Goals

The goal of the City of Seattle is to solve a problem of PCB contamination in its fuel oil at the Lake Union Steam Plant and to solve the problem in an economic and expeditious manner. The method proposed for meeting this goal must meet EPA regulations and not present any unusual hazards to the community.

The proposed method is on-site incineration of the fuel oil using a portable high-efficienty incinerator which is equipped with a heat recovery boiler which will produce steam at conditions that are useful to the steam turbines at the LUSP. Producing steam at the steam plant will make good use of the oil resource owned by the City of Seattle. The high efficiency incinerator proposed is one that has been used for the incineration of hazardous wastes within the City of Cincinnati and at other locations in the U.S.A.

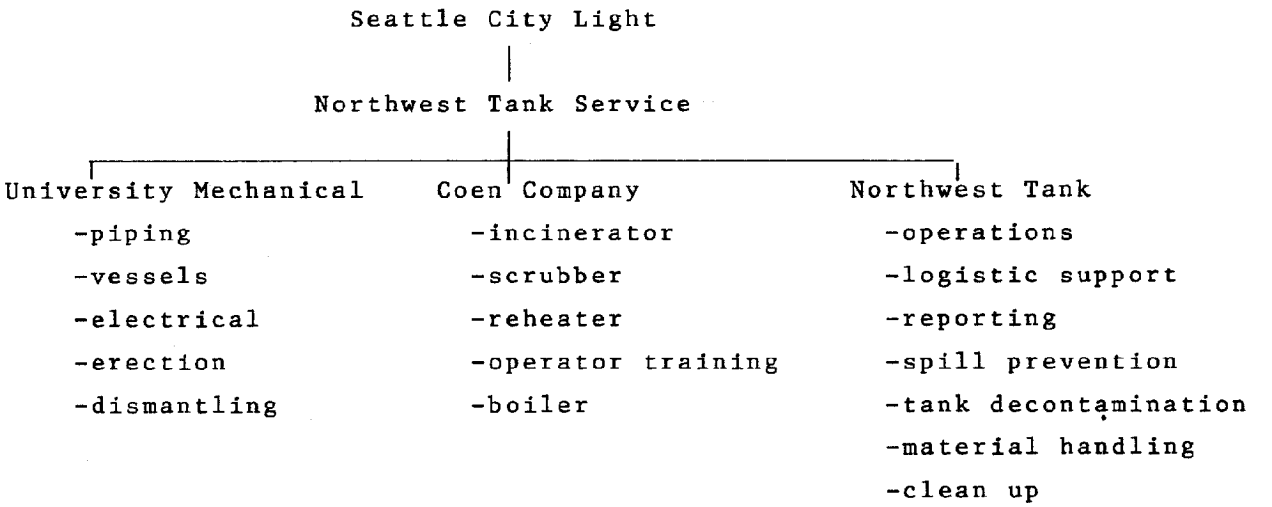
The method proposed offers the City a high degree of reliability, a practical schedule, and a reasonable cost. The reliability of the proposed method is enhanced by the specialty team assembled to meet this high exposure specialty task.

The presence of the City Light operating personnel will also provide some reliability and economy to the proposed method by being able to heat the oil and to make use of the steam.

B. Proposed Plan of Action

Northwest Tank Service is offering the City of Seattle a multi-disciplinary team for implementing the proposed method. The team consists of Coen Company, a foremost incinerator design and fabrication firm; Universtiy Mechanical Contractors, a local contractor with refinery skills; Western Combusion, a local boiler supplier; and Northwest Tank Services, a local hazardous waste management firm with considerable experience in handling PCB, heavy oil and boilers.

It is proposed to structure the project in the following manner. Each subcontractor will report to the Northwest Tank Project Engineer who in turn would be the contact point for the City of Seattle.



Proposed Plan of Action (continued)

Task 1 - Permits

Northwest Tank would work with the City of Seattle to assist in filing for those permits for which the City of Seattle need be the applicant. Coen Company will act as a resource base for EPA permits.

Task 2 - Fabrication of Incinerator and Process Equipment

Designs exist within Coen Company for incinerators of the type proposed. Upon award of the contract and securing the permits, the design drawings for this specific project would be issued to enable the Coen shop to begin fabrication.

The proposed process equipment include a scrubber to minimize air polution. It also includes a scrubber exhaust reheater to help reduce or eliminate the visible plume from the incineration process.

Fabrication of the incinerators and process equipment would take place in Seattle and Burlingame, California. With such close fabrication sources, the proposed schedules can be reasonably assured.

Task 3 - Supply of Boiler System

A package boiler would be provided by Western Combustion that originates in Minnesota. Being a package boiler, the cost and erection time are minimized.

Proposed Plan of Action (continued)

Task 4 - Erection of Total System

University Mechanical has documented its erection plans in Attachment II. The mechnical erection work would include assembly of all piping, vessels, incinerator, boiler, scrubber and controls. Figure 1 is a proposed general arrangement.

Task 5 - Startup

Coen Company would provide operational personnel to start up the total system and to provide operator training to the Northwest Tank Service operating crew.

Task 6 - Operation

Northwest Tank Service would provide a ten-man operating crew to operate the incineration and boiler system 24-hours per day, seven days per week. The operating crew would perform under the direction of an Operations Manager. Each shift would include a licensed steam engineer.

The City of Seattle would provide certain support functions necessary for the successful and efficient execution of the project. These support functions include (1) preheating of the fuel oil to 200° F (viscosity 200 SSU) and delivery of filtered and heated oil to the incinerator intake; (2) taking delivery of steam at 250 psig and 500°F; (3) supplying deaerated and softened boiler feedwater; (4) supplying on-site electrical power requirements; (5) supplying on-site compressed air requirements; and (6) supplying office and sanitary facilities.

Task 7 - Dismantling

Following completion of the incineration effort, the portable incinerator would be removed from the LUSP complete with all process equipment and boiler. The excavations and openings required for erection would be restored in a reasonable manner. If any contaminated soil is discovered as a result of the

Proposed Plan of Action (continued)

construction of the equipment on site, it will not be the responsibility of Northwest Tank to dispose of the material in our proposal as submitted. We have the capability to provide that disposal service within our firm if City Light should need to negotiate this if this occurs.

Task 8 - Decontamination

Pursuant to answers to instructions in the RFP Addendum I, tank cleaning is offered in the proposed amount.

Before the tank is emptied, Northwest Tank will measure the sludge depth and PCB content of the sludge. (Northwest Tank is capable and willing to negotiate a disposal rate for the sludge disposal.)

Decontamination would be performed on the tank and piping to the incinerator, in conformance with 40 CFR 761.

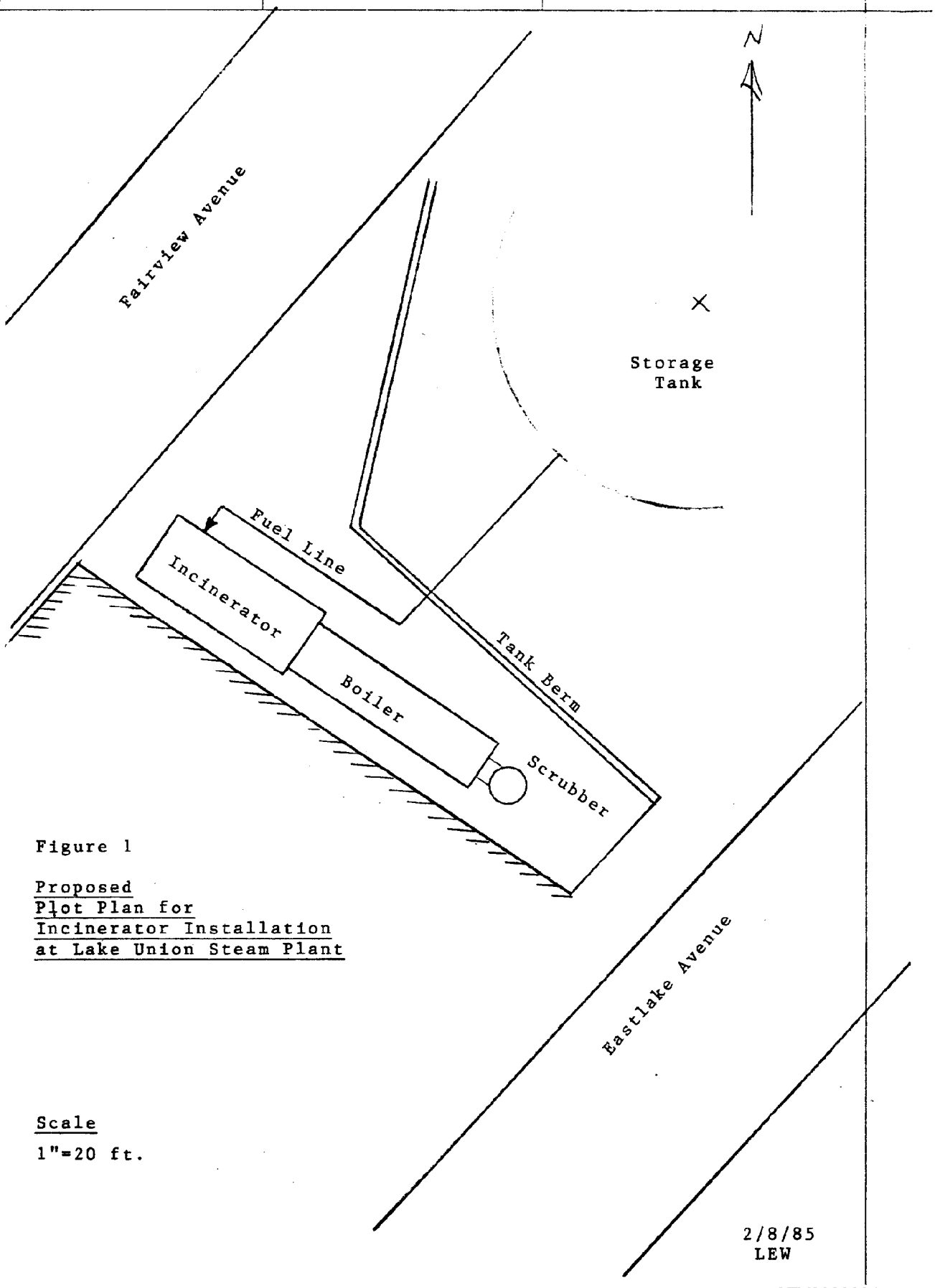


Figure 1

Proposed
Plot Plan for
Incinerator Installation
at Lake Union Steam Plant

Scale
1"=20 ft.

2/8/85
LEW

CTY0069034

C. Performance Bond Capability

We have been assured by our bonding company that a performance bond would be available on this project subject to the bonding company's review and approval of the final contract document.

Contact: Dick Jakielski
Bonding Representative
Hall, Conway, Jackson
(206) 527-2444
Seattle, Washington

Travelers Indemnity Company (surety)

D. Commitment to Project Success

Northwest Tank Services is a local firm with a stake in the well-being for the City of Seattle and the community that it has served for two generations. Northwest Tank Services has asked all of its subcontractors to provide assurances that they can meet the objectives of their assignments. None have an interest in other than rapid and orderly completion of the project.

Letters of Commitment by the major subcontractors are attached as Attachments I and II.

E. Affirmative Action

The affirmative action program at Northwest Tank is defined on RFP Attachment No. 3 and is attached to this proposal as Attachment III.

F. EPA Permit Status

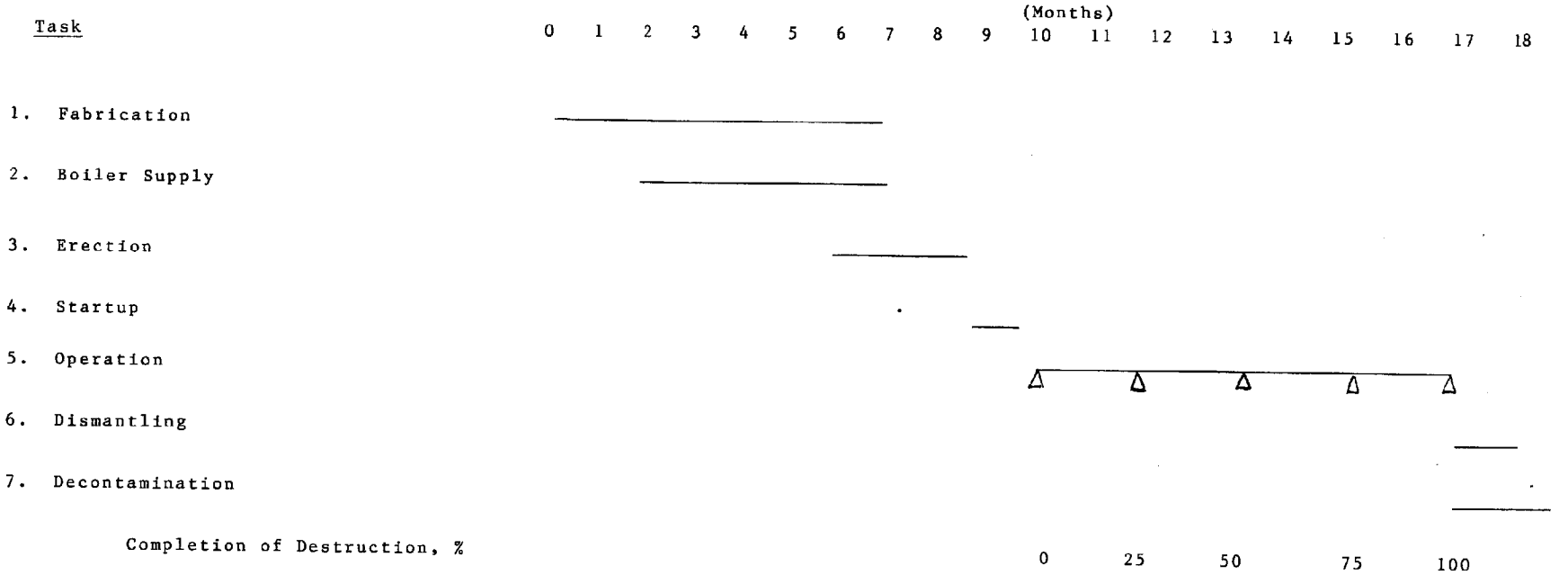
See cover letter and Section N for statements on EPA Permit status.

G. Schedule

The proposed schedule is displayed in Figure 2. The beginning point on the schedule is when Northwest Tank and the City of Seattle have the necessary permits and contract to proceed. The schedule show the time required to fabricate, erect and operate the incinerator system. The schedule shows that a full eighteen (18) months may be required for destruction of the PCB, but Northwest Tank will seek all available means to reduce the time schedule if possible.

Figure 2

Proposed LUSP Fuel Oil Incineration Project



H. Compliance of Proposed Operation

The proposed incinerator system will include a high-efficiency boiler that generates steam. The boiler will be a new unit, not a modification of the LUSP boilers. The stack from the boiler will go to a scrubber and then to an existing stack. The incinerator as a unit will meet the requirements of 40 CFR 761.70 as discussed below.

1. Combustion criteria will be based on at least two seconds dwell time at 1200° (+ 100C°).

2. Combustion efficiency will be at least 99.9% computed in accordance with 40 CFR § 761.70(a)(2).

3. The rate and quantity of PCB containing waste fed into the combustion system will be measured and recorded at regular fifteen minute intervals.

4. The temperatures of the incineration process will be continually measured and recorded. The combustion temperature will be based on wall thermocouple-pyrometer correlation readings.

5. The flow of PCBs will stop automatically whenever the combustion temperature drops below 1100C°

6. Monitoring of stack emission will be conducted for the following parameters when it is first used:

(a) O2
(b) CO
(c) CO2
(d) NOx
(e) HCI
(f) RCI
(g) PCBs
(h) Total Particulate Matter

Compliance of Proposed Operation (continued)

7. When the incinerator is incinerating PCBs, monitoring and recording of combustion products will be done for the following parameters in accordance with permit conditions: O2; CO: CO2.

8. The flow of PCBs to the incinerator will stop when abnormal operating conditions occur.

9. Water scrubbers will be used for HCl control during incineration in accordance with permit conditions.

Attachment I contains data on the Coen incineration equipment that has been permitted by EPA. The Coen equipment used by the City of Cincinnati is used to incinerate similar chlorinated solvents in waste oils.

I. Oil Credit Value

The RFP indicates that a credit is available for post-treatment heating value of the oil. With the heat recovery boiler on the incinerator, the post-treatment heating value is realized immediately. The proposed boiler will produce 500°F, 250 psig steam which is the same steam quality as is normally produced at the LUSP.

The efficiency of heat recovery is expected to about 65 percent which is also about the same as the LUSP boilers.

The laboratory analysis provided by City Light showed a heating value of the oil to be 18,047 BTu/lb. This equated to an oil credit value of:

$$811{,}000 \text{ gal} \times \frac{\$30}{\text{Bbl}} \times \frac{\text{Bbl}}{\$42} = (18{,}047 - 16{,}000) \frac{\text{BTu}}{\text{lb.}} \frac{\$33}{\text{BTu}} \text{ lb} = \$646{,}837$$

This oil credit is equivalent to a steam value of $5.58 per million BTUs. Northwest Tank would be willing to deliver the steam to the City or to quench the steam using water supplied by the City. The payments by the City would be the same in either event but the effective proposal price should be $646,837 less than the total payments.

J. Proposal Price

The proposal price for completing the proposed project is $3,326,900 . This price is subject to the conditions specified in the cover letter and elswhere in this proposal.

The scope of the proposed work is basically as contained in this proposal document. The performance standards shall be in compliance with established EPA regulations as specified in 40 CFR 761.

This pricing is valid for a period of ninety (90) days from the date of this proposal. After ninety (90) days, the above quoted price may be subject to escalation. The above bid price is based upon approval to proceed within ninety days.

Proposal Price	$3,326,900.00
(Estimate of Steam Credit)	(646,837.00)
Effective Cost to Seattle City Light	$2,680,063.00

K. Environmental Report

1. Statement of Risk.

There will be no reactive or other dangerous materials brought to the LUSP site. There will be no explosive or toxic gases generated at the site.

The only material to be handled is the fuel oil in the storage tank. The method of handling the oil will be essentially the same as it has been successfully handled since the inception of the plant.

Because of the 70 PPM PCB content of the oil, special care will be taken to contain any spills of the material no matter how small.

a. What might spill or what could cause an accident?

The most likely spill would be from a leaky valve or ruptured pipe. Because of this possibility, the working area will be bermed to the extent necessary to contain that oil which has been heated for flow to the incinerator. The leading cause of an accident would be from the heating and pumping of the oil. Such an accident is primarily a risk to the LUSP workers but is not significantly different from activities successfully executed at the plant for decades.

b. What environments and communities might be affected?

The impacts would be on those zones in the immediate vicinity of the plant. No overwater activities are planned that would involve Lake Union.

Environmental Report (continued)

c. What are the risks of spill or accident?

The risks of a spill or accident using the proposed method would require the cleanup of a tarry oil spill. A concrete berm around the equipment, containers, absorbant, vacuum truck, and decontamination gear would be standard tools of the operating crew to minimize the extent and risks of such a spill.

d. What is the impact of a less than complete spill or accident?

The most significant impact of incinerating the PCB-laden oil at the LUSP are probably associated with incomplete destruction of PCB in the burning process.

With the 99.9 percent destruction efficiency of the PCB in the Coen incinerator, the combustion products from burning oil with 70 PPM of PCB is equivalent to the burning of oil with 0.07 PPM PCB in the LUSP boilers. Since the EPA and City Light are content to burn 2 PPM PCB in the LUSP fuel, the proposed method offers a destruction efficiency that is 30 times better.

e. What mitigation methods are proposed to minimize impact?

It is proposed to use a scrubber on the combustion products to capture soluble combustion products. The scrubber efficiency would be 99 percent.

f. What are the residual impacts of a spill or accident?

Any spills or accidents will be decontaminated to the specifications provided in 40 CFR 761 and as such no residual impacts are anticipated.

2. Operational Plans

It is planned to operate the incineration activity continuously. There will be some traffic impact along Fairview Avenue during the erection phase. There will be some lights in the zone between the LUSP and the fuel oil storage tank during the incineration period. The only new noise will be assiciated with the fan for the scrubber.

L. Experience and References

Northwest Tank Services.

Northwest Tank Services has considerable experience in handling both PCB and heavy oil systems by virtue of its hazardous waste business and its tank and barge cleaning activities. NWT operates a boiler at its EPA-permitted facility of South Airport Way.

References of NWT capabilities are listed below:

1. Firm: Waste Management, Inc.
   3003 Butterfield Road
   Oak Brook, Illinois 60521
   Telephone: (312) 654-8800
   Contact; Mr. Phillip B. Rooney, President

2. Firm: IT Corporation
   4575 Pacheco Boulevard
   Martinez, California 94553
   Telephone: (415) 228-5100
   Contact: Mr. Jack Allen

3. Firm: Todd-Pacific Shipyard
   P.O. Box 3806
   Seattle, Washington 98124
   Telephone: (206) 623-1635
   Contact: Mr. Dan McDonnell

Experiences and References continued

Western Combustion.

Western Combustion (WC) experience is primarily in the boiler field. WC has installed over 1,000 boilers int the Pacific Northwest. WC engineers and technicians provide operational capabilities that are truly exceptional for small privately equipment supply firms.

1. Firm: Bouillon-Christofensen and Schairer
   505 Washington Bldg.
   Seattle, Washington 98101
   Telephone: (206) 682-3910
   Contact: Mr. Steve Stephens

2. Firm: Ebasco Services
   400 112th Northeast
   Bellevue, Washington 98004
   Telephone: (206) 451-4500
   Contact: Gordon Villesvik

3. Firm: Valentine, Fisher and Tomlinson
   720 Olive Way Southwest
   Seattle, Washington 98101
   Telephone: (206) 623-0717
   Contact: Mr. Indrv Primlani

Experience and References continued

University Mechanical Contractors.

University Mechanical Contractors (UMC) has 65 years experience as mechanical contractors. Much of the recent experience by UMC has been in erecting boilers and oil refinery equipment.

References of UMC capabilities are listed below:

1. Firm: Texaco, Inc.
   P.O. Box 622
   Anacortes, Washington 98221
   Telephone: (206) 293-2131
   Contact: J.A. Cutshall

2. Firm: Longview Fiber Company
   Longview, Washington 98632
   Telephone: (206) 425-1550
   Contact: N.H. Anderson

3. Firm: ITT Rayonier
   1800 Pacific Highway South
   Seattle, Washington
   Telephone: (206) 246-3400
   Contact: Mr. Joe Rizk

Experiences and References continued

Coen Company.

Coen Company (formerly Coen Burner Company) has 70 years of experience designing high efficienty burners and incineration equipment. Coen has a distinguished record or providing hazardous waste incinerators to EPA, Tacoma Boat, and other.

References of Coen capabilities are listed below:

1.	Firm:	City of Cincinnati Mill Creek Plank, Cincinnati, Ohio
	Telephone:	(513) 352-4828
	Contact:	Mr. John Trapp
2.	Firm:	Tacoma Boatbuilding Company Port of Tacoma
	Telephone:	(206) 593-8800
	Contact:	Mr. Mike Mehlhoff

Regulatory agencies most familiar with project participants:

Northwest Tank

Agency:	Washington D.O.E.
Contacts:	Linda Brother
	Larry Simms
	John Conroy

Coen Company

Agency:	USEPA, Criteria and Standards Division
Contact:	Mr. Gerald Chapman
Telephone:	(202) 755-2927

M. Contact Point for City Light

Seattle City Light should contact Larry Wilkinson of Northwest Tank Services (206) 622-1090 for questions about this proposal. Mr. Wilkinson is a Professional Chemical Engineer, registered in the State of Washington. He has been the project manager of many thermal and hazardous material projects over the past twenty years. He will be the Project Engineer for this project for Northwest Tank Services.

N. Permit Status

Coen Company is an EPA qualified hazardous waste incinerator manufacturer. The most recently qualified PCB incinerators are four (4) incinerators supplied by Coen Company for the Apollo I and II incinerator ships. Mr. Gerald Chapman of the USEPA, Criteria and Standards Division (202) 755-2927 was instrumental in qualifying the Coen incinerators for this PCB destruction duty.

The Cincinnati laboratory of EPA is the technical branch for evaluating the ability of commercial incinerators to destroy hazardous wastes including PCB. Dr. Donald Oberacker is in charge of this activity for EPA and is on (513) 684-7696. Dr. Oberacker can best verify the ability of the Coen incinerator to destroy 70 PPM PCB in fuel oil.

Although issurance of EPA permits is a regional matter, the testimony of the two above authorities should be useful in evaluating the need for protracted test burns, etc.